CLAIMS

1. A method for controlling a drive motor (20) of a positive displacement vacuum pump (16), the method comprising the following steps:

storing a curve (32) indicating a respective speed n of the drive motor (20) for inlet pressure values p, wherein the curve (32) comprises:

- an upper range (34) for inlet pressure values p larger than or equal to an upper limit pressure p_1, with a single constant upper speed value n_1 being associated with said upper range (34), and

- an alteration range (36) for inlet pressure values p smaller than the upper limit pressure p_1, wherein in the alteration range different speed values n_v are associated with the inlet pressure values p,

determining the inlet pressure value p,

determining the speed n associated with the inlet pressure value p in the curve (32), and

operating the drive motor (20) at the determined speed n.

2. The method according to claim 1, characterized in that the curve (32) comprises a lower range (38) for inlet pressure values p smaller than or equal to a lower limit pressure p_2, a single constant lower speed value n_2 is associated with the lower range (38), and the alteration range (36) is limited to inlet pressure values p larger than the lower limit pressure p_2.

3. A method for controlling a drive motor (20) of a positive displacement vacuum pump (16), the method comprising the following steps:

storing a curve (32) indicating a respective speed n of the drive motor (20) for inlet pressure values p, wherein the curve (32) comprises:

- a lower range (38) for inlet pressure values p smaller than or equal to a lower limit pressure p_2, with a single constant lower speed value n_2 being associated with said lower range (38),

- an alteration range (36) for inlet pressure values p larger than the lower limit pressure p_2, wherein in the alteration range (36) different speed values n_v are associated with the inlet pressure values p,

determining the inlet pressure value p,

determining the speed n associated with the inlet pressure value p in the curve (32), and

operating the drive motor (20) at the determined speed n.

4. The method according to any one of claims 1-3, characterized in that in the alteration range (36) decreasing speeds n_v are associated with decreasing inlet pressure values p.

5. The method according to any one of claims 1-4, characterized in that the upper limit value p_1 ranges between 20 mbar and 1 mbar, and the lower limit value p_2 ranges between 1.0 mbar and 0.005 mbar.

6. The method according to any one of claims 1-5, characterized in that the upper constant speed value n_1 ranges between 2,200 and 1,000 rpm, and the lower constant speed value n_2 ranges between 300 and 1,300 rpm.

7. The method according to any one of claims 1-6, characterized in that the positive displacement vacuum pump (16) is a fore vacuum pump arranged upstream of a high vacuum pump (14), and the inlet pressure p is the suction-side pressure of the high vacuum pump (14).

8. The method according to any one of claims 1-7, characterized in that the curve (32) is saved in a characteristic diagram storage.

9. The method according to any one of claims 1-8, characterized in that the drive motor (20) is an asynchronous motor.

10. A positive displacement vacuum pump (16) comprising a drive motor (20), an inlet pressure sensor (24) and a drive motor control (22) for controlling the speed n of the drive motor (20) in dependence on the inlet pressure value p determined by the inlet pressure sensor (24),

wherein the drive motor control (22) comprises a storage for storing a curve (32) which indicates a respective speed n of the drive motor (20) for inlet pressure values p of the inlet pressure sensor (24), wherein the curve (32) comprises:

an upper range (34) for inlet pressure values p larger than or equal to an upper limit pressure p_1, with a single constant upper speed value n_1 being associated with said upper range (34), and

- an alteration range (36) for inlet pressure values p smaller than the upper limit pressure p_1, wherein in the alteration range (36) different speed values n_v are associated with the inlet pressure values p.

11. The positive displacement vacuum pump according to claim 10, characterized in that the drive motor control (22) comprises a processor (28) which has connected therewith the inlet pressure sensor (24) and evaluates the signals of the inlet pressure sensor (24).